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Guidance For
Dust Control/Demolition Permit Application

This guidance is to be used as a guideline, when completing the Dust Control/Demolition Permit Application. This guidance includes details and explanations for all the information required in the Dust Control/Demolition Permit Application. This guidance includes the criteria that Maricopa County uses, when reviewing and evaluating Dust Control/Demolition Permit Applications. Below are three terms and their definitions. These are the principles, upon which the Dust Control/Demolition Permit Application is based.

EARTHMOVING OPERATION – The use of any equipment for an activity which may generate fugitive dust, such as but not limited to, cutting and filling, grading, leveling, excavating, trenching, loading or unloading of bulk materials, demolishing, blasting, drilling, adding to or removing bulk materials from open storage piles, back filling, soil mulching, landfill operations, or weed abatement by discing or blading.

FUGITIVE DUST – The particulate matter, which is not collected by a capture system, which is entrained in the ambient air, and which is caused from human and/or natural activities, such as but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control Of Air Contaminants) of these rules.

DISTURBED SURFACE AREA - A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust. For the purpose of this rule, an area is considered to be a disturbed surface area until the activity that caused the disturbance has been completed and the disturbed surface area meets the standards described in Rule 310, Sections 301 and 302.

Maricopa County Air Control Rules & Regulations Rule 200 (Permit Requirements), Section 305 requires any earthmoving operation disturbing more than 0.1 acres (4,356 sq.ft.) to obtain a permit. The permit is required from initial ground breaking through final stabilization and is valid for one (1) year from the date of issuance. An application must be resubmitted if more than 0.1 acres remain disturbed at the expiration of the permit. Processing and approval may take up to 14 days.

SECTION 1 – APPLICANT INFORMATION

1. **Applicant**: This is the name that will show on the permit and will not change from permit to permit. The address provided will be put on all subsequent permits with the same name. This will also serve as the mailing address for the permit or other compliance issues. This may also be the responsible party contracting to do the work.

   Submit the **Appropriate Fee** for your Dust Control/Demolition Permit application, according to the following:
   - If total surface area disturbed is 0.1 acre to less than 1 acre, submit $75.
   - If total surface area disturbed is 1 acre or more, submit $36/acre plus $110 per site
   - A late fee of $70 is required for any application submitted in response to a violation.

   Make checks payable to "Maricopa County Environmental Services Department" or "M.C.E.S.D."

2. **Property Owner/Developer**: If different from the applicant.

3. **Primary Project Contact**: Knowledgeable person of the project site. The phone number provided should be able to reach the contact within 24 hours.

4. **Responsible Official**:
   •For a corporation, a corporate officer or any other person who performs similar policy or decision making functions for the corporation, or a duly authorized representative of such person, if the representative is responsible for the earthmoving operations in the subject application. Delegation of authority to such representative shall be approved in advance by the permitting authority.
   •For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
   •For a municipality, state, Federal, or other public agency, the principle executive officer or ranking elected official of that entity. Delegation of signature authority needs to be submitted in written form to the Air Quality Division Dust Control Program.

5. **Application Completed By, If Not Signatory:** Frequently this person needs to be contacted if there are questions regarding how the dust control plan was filled out.

SECTION 2 – PROJECT INFORMATION

6. **Address Of Project Location:** If no specific address is available, provide a block number and street, Maricopa County Assessor's parcel number, or GPS coordinates. The legal description is required and can be obtained from a Phoenix Metropolitan Map Book or from the Maricopa County Assessor's parcel description.

7. **Name of Project**: Name by which this project will be referred, if any. (e.g. Millionaire Acres)

8. **Description of Project**: Describe the project that will be taking place on site. (e.g. 3 building commercial complex; custom home; weed control; demolition of 2 buildings; roadway improvement)

9. **Size of Project**: The area that will be disturbed during the duration of this permit. Include all unpaved staging and parking areas, as well as stockpile areas (in acres or square footage).

10. **Project Start Date and Duration of Project:** This information is used by Maricopa County to schedule inspection work load. It is also used to determine if the same project is on-going or a subsequent dust generating operation is taking place at the project location.

11. **Project Site Drawing**: The department uses the drawing to delineate boundaries between separate projects so one permit holder is not held responsible for another's work. It is also used as a reference, so it does not need to be to scale. It should however be as accurate as possible. The drawing should be no greater than 8½" x 11". It needs to include the following elements:
    - •Entire site boundaries (including staging areas, stockpiles, and storage)
    - •Linear dimensions, in feet
    - •Nearest public cross roads
    - •North arrow
    - •Planned exit locations
    - •Water supply locations

12. **Site Soil Designations**:

Soil texture is the single most important physical property of the soil. Knowing the soil texture alone will provide information about: (1) water flow potential, (2) water holding capacity, and (3) suitability for many urban uses like bearing capacity. Soils can be divided into three basic classifications: sands, loams, and clays. There is great variation within these basic groups, but these categories will suffice for the purpose of choosing appropriate dust control measures for a work site.

Different types of soils will require more intensive water use or the use of dust suppressants to maintain compliance with Rule 310, Section 301 (see table on Page #4). If any requirements stated herein contradict recommendations of a site geotechnical report, attach a copy of the report to the dust control plan. The report will be incorporated as part of the dust control plan.

According to Rule 310, for construction projects 1 acre or larger (except for routine maintenance and repair done under a block permit), you must provide the following information:

- soil type naturally present at the dust generating operation
- shrink/swell potential of soil naturally present at the dust generating operation
- soil type to be imported onto the dust generating operation
- shrink/swell potential of imported soil onto the dust generating operation

Soil maps (in Appendix F of the Maricopa County Air Pollution Control Rules & Regulations) are to be used as a guideline. The actual measured soil texture and shrink/swell potential shall take precedence over any mapped soils. The first soil map in Appendix F designates soil texture ratings within the PM_{10} nonattainment area. Four soil texture ratings are designated. These designations – severe, moderate, slight, and very slight – refer to a soil's potential to create PM_{10}. The second soil map in Appendix F designates shrink/swell potential of soils within the greater Phoenix area. Three shrink/swell potentials are designated – high, moderate, and low. The table below summaries both maps and designates which soil types require the use of dust suppressants

MAP #1 IN APPENDIX F					MAP #2 IN APPENDIX F		
Color Designation On Map #1	**SOIL TEXTURE RATINGS**	Soil Types	Characteristics Of Soils	**CONTROL MEASURES**	Color Designation On Map #2	**SHRINK/SWELL POTENTIAL**	Characteristics of Soils
Red	Severe	Clay Silty Clay Sandy Clay	• Low hydraulic conductivity (the rate at which water can flow through the soil) • Retain water • Harden in heat of summer • Warm-up slower in spring • Soil particles can all be oriented in the same position – flat – and can form a barrier through which water and air cannot penetrate	Apply water and a dust suppressant	Red	High	• High clay content (greater than 40%)
Orange	Moderate	Loam Silt Loam Clay Loam Silty Clay Loam Sandy Clay Loam	• Hold more water than sandy soil • Drain well • Easier to work than clay • Better consolidated than sand	Apply water and a dust suppressant	Yellow/Orange	Moderate	• Found in alluvial valleys and footslopes of mountains
Green	Slight	Very Fine Sandy Loam Fine Sandy Loam Sandy Loam Course Sandy Loam	• Hold more water than sandy soil • Drain well • Easier to work than clay • Better consolidated than sand	Apply water	Green	Low	
Light Yellow	Very Slight	Very Fine Sand Fine Sand Sand Coarse Sand Loamy Very Fine Sand Loamy Fine Sand Loamy Sand	• Large pore spaces • High hydraulic conductivity (the rate at which water can flow through the soil) • Tend not to compact	Apply water			

SECTION 3 – DUST CONTROL PLAN

Rule 310, Section 303 requires the submission of a Dust Control Plan with your application. You may fill-out Section 3 of the Dust Control/Demolition Permit Application and submit it as your Dust Control Plan or you may write your own Dust Control Plan describing all control measures to be used during the project and submit it as your Dust Control Plan.

Dust must be controlled for each dust generating operation to be conducted in a construction project. Dust can be controlled by implementing control measures. There are 10 sections (A – J) in the Dust Control Plan that follow. Each section has choices of control measures. Select all control measures that will be used to control dust for each dust generating operation to be conducted in a construction project. Changes to the Dust Control Plan may be made after application approval by submitting a Dust Control Plan change form.

You may choose to use control measures not currently listed in the Dust Control Plan section of the Dust Control/Demolition Permit Application. Such unlisted control measures will be reviewed by Maricopa County and may require additional information regarding their effectiveness. Any unlisted control measure must clearly meet the dust control requirements of Rule 310 for any dust generating operation.

Maricopa County will apply the following minimum criteria, when evaluating any unlisted control measures:

- The control measure technique is a new or alternative technology that is demonstrated to be equally or more effective in meeting the dust control requirements than the existing control measures; or
- Site logistics do not practically allow for implementation of a listed control measure as written (e.g., road width or pre-existing barriers limit the size or width of a gravel pad); or
- The owner and/or operator demonstrates that a listed control measure is technically infeasible due to site-specific or material-specific conditions, such that implementation of the control measure will not provide a benefit in reducing fugitive dust (e.g., pre-soaking screened, washed rock when handling).

Below is a "table of contents", of sorts, that lists the heading for each section and that includes questions to ask yourself when designing your Dust Control Plan. **Keep in mind that weather conditions play a big part in dust control and may require that you cease operations. When planning a contingency control method, do not choose water, if it is your primary control method. We assume that you will apply enough water to control dust, until it becomes an infeasible option.** Vehicle speed is not an acceptable control measure for all areas of the Dust Control Plan. Where vehicle speed is an acceptable option, you must indicate what vehicles are being limited by speed and how the speed of such vehicles is being limited.

A. Vehicles/Motorized Equipment

1. **Use In Open Areas:** How will you keep vehicles out of the areas not intended for travel? This includes the public, employees, subcontractors, utilities, or project inspectors.
2. **Unpaved Parking Lots:** What areas have you set aside for parking? This includes any areas where your employees and contractors will be parking their vehicles. It would also include material staging areas.
3. **Unpaved Haul Roads/Access Areas:** These are roads or designated access areas for vehicles or delivery trucks. On most single residential sites, the haul road is typically the future driveway. Paving is acceptable as a primary control measure if paving is done at the beginning of a project.
4. **Open Areas and Vacant Lots:** These areas need to remain stabilized (visible crust, vegetation, surface gravel) and unaccessible to motorized vehicles.

B. Disturbed Surface Areas

1. **Before Dust Generating Operations Occur:** These are the plans you have made before starting work that will minimize dust. Where project phasing is chosen as a control measure, you may use the project information drawing to show the various project phases, along with a time line showing relative start and stop times. Indicate on the line provided for describing major project phases that you have shown the various project phases on the project information drawing.

    - Areas to be disturbed should be watered for several days prior to commencing a dust generating operation. This does not mean flooding the area to be disturbed, which may make the area unworkable. Nor does it mean allowing the watered area to dry-out before the dust generating operation occurs, since that would prevent adequate dust control.

2. **During Dust Generating Operations:** Water must be applied continuously in front of or in conjunction with a scraper/grader/dozer. Water applied behind equipment is usually intended for compaction purposes and not dust control. If a water truck is required to leave the project site for refilling, the contingency measure must be implemented to comply with Rule 310, Section 301.
3. **Temporary Stabilization Including Weekends, After Work Hours, Holidays, And Periods Up To 8 Months:** How are you going to stabilize your site during non-work hours?
4. **Permanent Stabilization Required Within 8 Months Of Ceasing Dust Generating Operations:** How will the open areas of the site be permanently stabilized? How will the site be stabilized if construction is halted?

C. Bulk Material Handling

1. **During Stacking, Loading, And Unloading Operations:** Will you be trenching and/or backfilling? This includes any time bulk materials are loaded into a truck or when materials are put into spoils piles from trenching operations.
2. **Open Storage Piles:** How will you control dust from any storage or spoils piles? Will you have spoils and/or storage piles for any length of time? Open storage piles include piles that are onsite for any length of time. If you apply water or dust suppressant(s) to open storage piles when not conducting stacking, loading, and unloading operations, make sure that you limit unauthorized vehicle access to the area.
3. **On-Site Hauling Within The Boundaries Of The Work Site And Crossing A Paved Areas Accessible To The Public:** Crossing a paved area is when you are traveling perpendicular to the paved area. If you are <u>not</u> traveling perpendicular to a paved area, then you are traveling along the paved area. Traveling along the paved area may take you outside the work area, unless such area has been barricaded to public travel.
4. **On-Site Hauling Within The Boundaries Of The Work Site:** Will you be moving dirt or rock from one area to another area on your site?
5. **Off-Site Hauling Onto Paved Areas Accessible to the Public:** Will you be conducting debris clean up or lot clean up? Will you be exporting materials?

D. Trackout, Carryout, Spillage, And Erosion

1. **Trackout Control Device:** What will you use as a control device, if trenching removes an existing gravel pad? What will be used as a control device during curb and gutter installation? How will you direct traffic to the designated exit locations and restrict traffic from using other exit points? Control devices are required at every exit to a paved area accessible to the public for job sites greater than or equal to 1 acre or when more than 100 cubic yards/day of bulk material are hauled on-site/off-site. Trackout control devices are preventative devices intended to reduce the amount of dirt transferred onto paved areas and entrained into the atmosphere. If you are using a paved area accessible to the public as the trackout control device, it must be part of your designated work site. If the public has access to the designated area during work hours (e.g., parking lots), it will <u>not</u> be acceptable as a trackout control device. It is a violation of Rule 310, if your site is required to have a trackout control device and does not, regardless of whether trackout is present. Trackout control devices can be rendered ineffective due to silt/mud loading or flooding.
2. **Cleaning:** Cleaning includes medians, gutters, and sidewalks. Many work sites are located in areas where the paved areas may not be cleaned by power washing with water due to Storm Water Pollution Prevention Plans (SWPP) or National Pollutant Discharge Elimination Standards (NPDES). You are required to <u>immediately</u> clean trackout extending more than 50 feet. Trackout less than 50 feet requires cleaning by the end of the work day. During import/export operations and following rain events, cleaning may need to be done on a consistent basis to control trackout. It is a violation of Rule 310, if you have not cleaned trackout regardless of whether a trackout control device is present.

E. Weed Abatement By Discing Or Blading: If this is a long project will weed removal or weed control be an issue in the future? Open burn permits may be required, if grubbing material is disposed of through burning.

F. Blasting Operations: Will blasting be allowed for removal of structural concrete? Is there an available site for stockpiling material? Will underlying material require blasting?

G. Demolition Activities: If concrete removal quantity is sizable, is there a available dump site?

H. Wind Event: A “wind event” is when the 60-minute average wind speed is greater than 25 m.p.h.

I. **Water:** Sources of fugitive dust, listed in Section 3, that include "apply water" as a control measure require specifics about water availability and water application. If you choose to apply water as a control measure, you must fill-in the blanks, under both "water availability" and "water application". For "water availability", indicate which of the following will be utilized: water storage tank on-site; metered hydrant on-site; water not on-site, describe water source and state the distance from site to water source; water provided through irrigation; other – specify source. For "water application", indicate which of the following will be utilized: apply water using a water truck – state number of trucks and number of gallons per truck; apply water using hoses; apply water using sprinklers.

J. **Dust Suppressants:** Dust suppressants are described below.

You must provide the soil type and the shrink/swell potential of the soil naturally present on the site and of the soil to be imported onto the site, for construction projects 1 acre or larger (except for routine maintenance and repair done under a block permit). Below is a description of shrink/swell potential.

Since different types of soils will require more intensive water use or the use of water in combination with dust suppressants to maintain compliance with Rule 310, Section 301, below are descriptions of dust suppressants. Also, below are description of surfactants, tackifiers, and flocculants, which are categories of dust suppressants.

Shrink/Swell Potential

Shrink/swell soils are moisture sensitive clay soils, which expand and contract based on their moisture content. These soils cause damage due to the differential movement between wet and dry seasons.

Most shrink/swell soils are sticky when they become wet and are very hard when they become dry. Swelling commonly moves the soil upward, shifting foundations of houses and tilting fence posts. When the soil dries out later in the year, it contracts and shrinks. Drying causes the soil to lose most, but not all, of its water.

Dust Suppressants

Dust suppressants (i.e., hygroscopic material, solution of water and chemical surfactants, foam, and non-toxic chemical stabilizer) work by either agglomerating the fine particles, adhering/binding the surface particles together, or increasing the density of the road surface material. They reduce the ability of the surface particles to be lifted and suspended by either vehicle tires or wind.

Dust suppressants (chemical dust suppressants) help provide the desired level of dust control with a minimum amount of moisture. While using chemicals appears to add to the cost of dust control, careful analysis shows that the benefits of chemical dust suppressants typically reduce dust control costs compared to mechanical collectors and/or water alone.

Traditional dust suppressants generally fall into one of six generic categories:

- Surfactants: Surfactants are short-term wetting agents requiring frequent application. See the following section for more information about surfactants.
- Adhesives: Adhesives, such as lignin sulfonate (tree sap), act as binders to form a seal over the surface.
- Electrochemical Stabilizers: Electrochemical stabilizers are derived from sulfonated petroleum, which expel water from the soil and increase compaction.
- Petroleum Products: Petroleum products bind fine particles together.
- Chloride Salts: Chloride salts both attract moisture from the atmosphere and retard its evaporation.
- Miscellaneous Other Products: Miscellaneous other products include microbiological binders and polymers.

The following are types of chemical dust suppressants:

- Wetting Agents: Wetting agents are surfactant formulations (see the following section for more information about surfactants) that improve the ability of water to wet and agglomerate fine particles. Available products range from single component commodity surfactants to specialty chemical formulations that contain blends of surfactants with organic and inorganic additives. Binding agents may also be used for long-term (residual) dust control effects.

- Foaming Agents: Foaming agents are used to convert water and air into foam. Dust control foam is a dry, stable, small-bubbled foam with a consistency similar to shaving cream. Foaming agents are primarily high foaming surfactants and may also contain wetting and binding agents. Foaming agents function similarly to liquid spray wet suppression, in that the foamed liquid wets and agglomerates fine particles.

- Binding/Agglomerating Agents: Binding/agglomerating agents provide long-term (residual) dust control compared to water (wetting agents or foaming agents). Water-based products are applied as liquid sprays or foams. Therefore, all of the criteria described for wetting agents and foaming agents also pertain to binding/agglomerating agents. Binding agents are used when it is either impractical or uneconomical to control dust using water-based technologies (wetting agents or foaming agents).

- Crusting Agents: Crusting agents are binding agents used for long-term (residual) surface stabilization. The chemistry of crusting agents is similar to latex paint. The primary active components are water-based latex polymers that cure to form a mechanically stable water-insoluble film. Wetting and/or viscosity modifiers may be added to affect the rate and degree of liquid penetration into the bulk solid surface. Field application techniques are similar to spray painting an irregular surface with exterior latex paint. A primer or seal coat and 1 – 2 finish coats of crusting agent should be applied for complete coverage. Allow time to dry (cure) between coats and treat 24 – 48 hours prior to forecasted rain.

Selection of the best dust control measures must include an understanding of not only the primary factors that generate dust (vehicle speed, number of wheels per vehicle, particle size distribution (gradation) of the surface material, and surface moisture) but also the long-term cost and environmental impacts of such control measures. Long-term costs include application of dust suppressants in conjunction with the number of times the dust suppressants needs to be applied and the expected change in maintenance practices. Environmental considerations generally include impacts to the water quality and plant community.

Surfactants

Water is a very effective dust control material, as it wets small dust particles and forces the particles to adhere to each other and agglomerate. In situations where water is scarce or it is impractical to wet surfaces daily, an additive can be used to achieve longer lasting results. A surfactant, or surface-active agent, makes water more efficient by making water “wetter”. Water becomes "wetter" by lowering its surface tension. With the addition of a surfactant as a part of a routine watering program, drops of water spread out and contact surfaces more effectively.

Additionally, with the addition of a surfactant, after the water evaporates, the dust particles must remain agglomerated. Surfactants do not evaporate and are residual. They continue to work after the surface appears dry. The duration of this effect is dependent upon temperature, friction, and run off. Most surfactants are biodegradable and their concentration will decrease over time.

By adding, to water, surfactants in the right blend, you can maximize the effectiveness of water. Sometimes, the longer you use a surfactant, the better the results, because you get a cumulative residual effect.

In a study regarding the effects of surfactants (by water sprays) on dust suppression in a limestone crushing plant, four surfactants were used. The collection efficiency of water sprays at 20 psi – 60 psi water pressure using water with no surfactant and using water with 0.01% surfactant were studied using 3 types of nozzles. The results showed that the addition of 0.01% surfactant could improve dust collection efficiency from 30% - 75%.

Tackifiers

Tackifiers are substances used with water to hold together mulches and other dust palliatives. A tackifier binds small particles together without forming a hard crust. Many dust palliatives can be used in a dilute form as a tackifier. Tackifiers can be used as dust control on dirt roads or in construction projects, for silt control, to prevent storm water run off, and for slope stabilization.

Lots of materials have been tried through the years as a tackifier to help hold hydro seeding fast to the ground, during the early stages of germination. Today's tackifiers primarily fall into 2 categories. The first type of tackifier is based on an acrylamide copolymer, often called "PAM" tackifier. PAM type tackifiers are granular and look like sugar or salt. They most often come in a convenient 3-pound jug. A jug will provide holding power for about 1 acre of hydro-seeding. PAM type tackifiers hold best once the mulch mat has dried completely one time.

The second type of tackifier is a Guar (organic polysaccharide) based product. Guar products are more powdery in appearance. The application rate is often in the 20 pounds – 60 pounds per acre. They usually come in bags and are not quite as convenient as the PAM type tackifiers. Guar based tackifiers need less curing time than PAM type tackifiers.

Other products used as tackifiers or used in tackifiers include, but are not limited to, psyllium or platago husks, clay components, and gelling agents.

Flocculants

A typical method for controlling or suppressing dust is to apply a water spray. However, water sprays only control dust for a short period of time depending upon environmental conditions. The application of the spray has to be repeated frequently to provide ongoing dust control. Experiments have been conducted to discover other methods and/or treatments to control dust emissions. Using flocculants is one such method.

A flocculant is a chemical that causes a dispersed colloidal system (such as clay) to coagulate and form flocs. Most flocculants are either multivalent cations such as calcium, magnesium, aluminum, or lon polymers. High pH, high salinity, and high temperature can also cause clay flocculation.

Some experiments that have been conducted include the following:

- Aqueous foamable compositions and their use to suppress coal dust. The composition contains water, an interpolymer of a polymerizable vinyl ester and a partial ester compound interpolymerizable with the vinyl ester, and a detergent wetting agent. The interpolymer binds coal dust and keeps the dust particles encapsulated after the foam has collapsed.

- A combination of an organic polymer latex such as a styrene-butadiene interpolymer and a silicone applied to the surface of a coal pile or other mass of finely divided particulate materials. In addition, a wetting agent may be incorporated to prevent premature coagulation. The combination is applied as an aqueous mixture such as by spraying.

- The suppression of dust with an aqueous foam comprising a foaming agent and an elastomeric water insoluble polymer. The foam provides immediate dust suppression and eases application. The polymer coats the material and continues to suppress dust generation during handling of the material after the foam has collapsed.

- The use of at least one methacrylate polymer for dust suppression. The methacrylate polymer provides dust suppression when applied to a wide variety of materials. After application, the polymer provides a tacky, water resistant coating which effectively prevents dusting while additionally acting as an anti-freeze agent.

- A combination of water soluble anionic acrylic polymers and nonionic glycol polymers and anionic and nonionic surfactants useful for the control of dust emissions into the environment.

Also, a study regarding the potential of polyethylene oxide (PEO) solutions as a fugitive dust suppressant was conducted at the Global Institute For Energy And Environmental Systems. It was concluded that polymers help in soil stabilization due to its ability to bind fine particles together into sizes that may be too heavy to be airborne. The effectiveness of a polymer liquid or aqueous polymer solution on soil particles may be variable depending on soil mineralogy, polymer characteristics, and physio-chemical conditions. Aqueous PEO at a concentration of about 2 g/L showed low liquid loss, when the soil was exposed to a temperature of 25°C and relative humidity of 30%. This was indicative of liquid retention that would minimize the potential of dust release. Test results proved a first-level indication of the reasonably good potential of low aqueous concentration of PEO as a dust suppressant.

A product called “Terra-Mulch Tacking Agent 3®” contains the known flocculant - polyacrylamide (PAM). (See discussion of tackifiers earlier in this document for more information regarding PAM). In 1994, Tacking Agent 3® (Tack 3) was evaluated by a major turf university to determine its value as a soil stabilizer. Tack 3® was applied alone at a rate of 60 lbs per acre on a 45% slope. The test plots were subjected to simulated rainfall of 12 inches per hour for 30 minutes. The simulation took place within 2 hours of seeding. Tack 3® reduced erosion (versus the control) by 68.8% and reduced water runoff by 21.7%.

Below are descriptions of some stabilization standards.

Vegetative Ground Cover

If you choose to “establish vegetative ground cover” as a control measure, you must comply with the standards in Rule 310, Section 302.3:

- Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; or
- Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%; or
- Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; or
- Maintain a percent cover that is equal to or greater than 10% for non-erodible elements.

Surface Gravel, Recycled Asphalt, Or Other Suitable Material

If you choose to “apply and maintain surface gravel, recycled asphalt, or other suitable material” as a control measure for unpaved haul/access roads, you must comply with the standards in Rule 310, Section 302.2:

- Do not allow visible dust emissions to exceed 20% opacity and either do not allow silt loading to be equal to or greater than 0.33 oz/ft2 or do not allow silt content to exceed 6%.

If you choose to “apply and maintain surface gravel, recycled asphalt, or other suitable material” as a control measure for unpaved parking lots, you must comply with the standards in Rule 310, Section 302.1:

- Do not allow visible fugitive dust emissions to exceed 20% opacity and either do not allow silt loading to be equal to or greater than 0.33 oz/ft2 or do not allow silt content to exceed 8%.